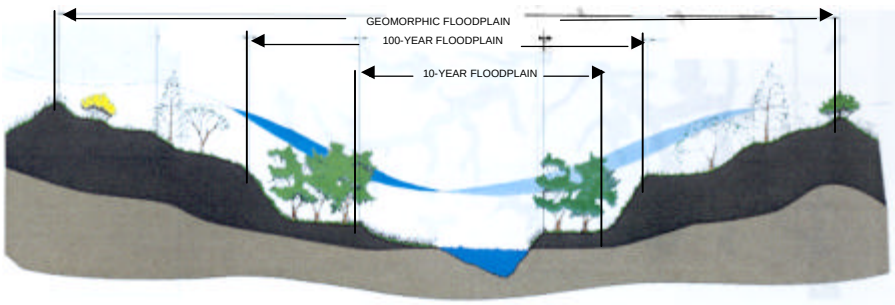
Floodplain Management: No-Net Rise and Compensatory Storage



Description

No-net rise floodplain management strategy requires developers to show that proposed improvements do not increase flood elevations at the site and/or downstream. Developments within the floodplain that increases the regulatory floodplain water surface elevations are prohibited. No-Net Rise is often combined with compensatory storage to provide some flexibility for the developer. Compensatory storage requires the developer to provide hydraulically equivalent storage volume at a ratio of 1 to 1 or greater for the fill volume proposed within the floodplain. A No-Net Rise/Compensatory storage policy would allow the developer to fill in the floodplain if it can be demonstrated that the fill will not increase the floodplain water surface elevations.

A no-net rise/compensatory storage floodplain management alternative should not be confused with “no net loss”. Often, a “no net loss” approach simply requires equal amount of fill and excavated volume, and does not require hydraulic simulations to verify a no-net rise in the floodwater elevations.

Advantages

- Maintains floodplain storage volume.
- Prevents downstream increase in peak flow rates by maintaining the floodplain storage.
- Maintains existing flood elevations.
- Reduces impact to riparian corridor.
- Allows for development to occur within the floodplain as long as conditions are met.
- Provides some water quality benefits by preserving floodplain storage.

Disadvantages

- May increase bridge design and construction costs for which backwater is a constraint.
- Requires more in depth technical review.
- Increases development costs.
- A Compensatory Storage (“no net loss) approach without requiring flood modeling would not be effective and could actually increase floodplain water surface elevations.

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☹ Requires identification and acquisition of compensatory storage areas.

☹ Requires developer to perform floodplain modeling.

Implementation Considerations

- Resources available for site plan review and enforcement
- Floodplain modeling methods are required to achieve greatest success
- Compensatory storage requirement for upstream storage areas such as wetlands
- Public outreach program
- Level of regulation

Example Communities

- Lake County, Illinois
- Fort Worth, Texas
- McHenry County, Illinois
- Milwaukee, Wisconsin
- King County, Washington

References

Comparison and Assessment of Zero-Rise Floodplain Ordinances, Wood, Andrew, et. al., Journal of Water Resources Planning and Management, July/August 1997.

No Adverse Impact Status Report: Helping Communities Implement NAI, June 2002, Association of State Flood Plain Managers